

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
23 December 2004 (23.12.2004)

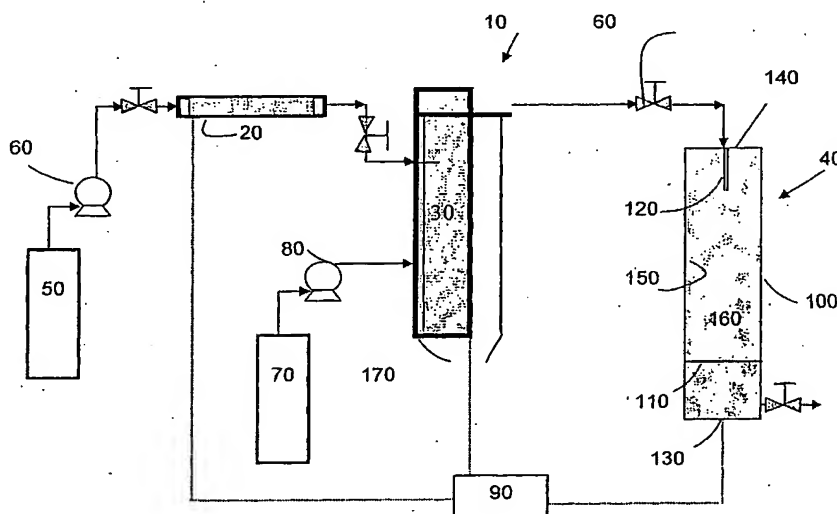
PCT

(10) International Publication Number
WO 2004/110603 A2

- (51) International Patent Classification⁷: **B01F** SEITZINGER, Jeffrey, S. [US/US]; 314 Lazzaro Drive, Broadview Heights, OH 44147 (US).
- (21) International Application Number: PCT/US2004/017451 (74) Agent: CLARK, Kenneth, A.; Rankin, Hill, Porter & Clark LLP, 925 Euclid Avenue, Suite 700, Cleveland, OH 44115-1405 (US).
- (22) International Filing Date: 2 June 2004 (02.06.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 60/475,269 3 June 2003 (03.06.2003) US
- (71) Applicant (for all designated States except US): FERRO CORPORATION [US/US]; 1000 Lakeside Avenue, Cleveland, OH 44114 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): CHATTOPADHYAY, Pratibhash [IN/US]; 7729 C Oakhill Road, North Royalton, OH 44133 (US). SHEKUNOV, Boris, Y. [GB/US]; 115 Woodland Trace, Aurora, OH 44202 (US).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI,

[Continued on next page]

(54) Title: METHOD FOR PREPARATION OF PARTICLES FROM SOLUTION-IN-SUPERCritical FLUID OR COMPRESSED GAS EMULSIONS



(57) Abstract: The present invention provides a method of producing particles from solution-in-supercritical fluid or compressed gas emulsions. In accordance with the method of the invention, a solution that includes a solute dissolved in a solvent is contacted with supercritical fluid or compressed gas to form a solution-in-supercritical fluid or compressed gas emulsion. The emulsion is sprayed through an orifice to create spray droplets. The supercritical fluid or compressed gas and the solvent are removed from the spray droplets resulting in the formation of particles that include the solute. In one embodiment of the invention, the solvent is removed from the spray droplets by lyophilization. In another embodiment of the invention, the solvent is removed from the spray droplets by evaporation.

WO 2004/110603 A2